Work Order ID 92413 Page 1 October-30-12 12:43:15 PM Item ID: D212-664-101 Accept \*N900040100\* Setup Start **Revision ID:** Stop Crosstube Fwd High Item Name: Start Qty: 1.00 **Start Date:** 10/29/12 **Cust Item ID:** Req'd Qty: 1.00 Required Date: 11/16/12 **Customer:** Reference: Run Process Plan: ML5 Date: \2-\0-3\ Tooling: Approvals: • Date: Stop QC: · SPC (Y/N): Date: Date: Sequence ID/ Reject Operation Set Up/ Tool ID Tool # Plan Accept Reject Insp. Stamp Work Center ID Description **Run Hours** Code Qty Otv Number **Draw Nbr** Revision Nbr D212-664-141 Rev D (DEO) MLJ 12-11-19 100 0.00 DOCUMENT CONTROL \*100\* 0.00 Memo Photocopy bluefile and create labels as per PPP D212-664-101 CHG005 Document Control Pick Kit 0.00 12/11/08 Packaging \*110\* 0.00 Packaging Memo Packaging 120 0.00

\*120\* CNC Bend 2

BENDING MACHINE - CROSSTUBES

Memo

mo/2/12/11/08

CNC Alpha 160 Bender

Bend tube as per Dwg D212-664-141 using CNC bender program 212-fw and Folio D212-664-101

0.00

,										DQA:	Date:	*
NCR: Y	es / I	No				WORK ORDER NON-	CON	FORN	MANCE / UPDATE		_	
										QA Closed:	Date:	
Work Orde	er:			•		DISPOSITION		•	AGAINST D	EPARTMENT,	PROCESS	
Part N	lo.					Rework Scrap Use-as-is Work Order Update		N Therm	Skid-tube Crosstube Machining Small Fab noforming Finishing Large Fab Composite		Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other .
Root					Descri	ption of work order update	In	itial	Action	Sign &		
Cause	Da	te	Step	Qty		or Non-conformance	Chie	ef Eng	Description	Date	Verification	QC Inspector
oc/Data quip/Tooling Operator Material etup Other Process upplier raining			*	0		•						
					· · · · · · · · · · · · · · · · · · ·		AULT	CATE	GORY			
Landii	Landing Gear  Bending Centre Not Concentric to O/S Cracks Crushed/Crimped Cuffs Heat Treat Inspection Strip in Tube Ripples in Bend Torque Wayes in Extrusion			General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short Drill Holes		Grain Hardwa nspecti nstructi Mainte Mislabe Misread Offset	on Incomplete ions Incomplete/Unclear inance iled	Ovalized Over/Under Part Incorre Part Lost/M Part Moved Positioned V Power Loss/	ct issing Vrong	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other		
	Torque Waves in Extrusion Turning Sequence					Drawing ,	<del></del>		Calibration Sequence			

Outside Dimensions

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Wave/Twist in Tube

Revision ID:	D212-664-10		. :	Accept	*N900	<b>040100</b>	* Setup	Start Stop	*NS1* *NS2*
Start Date: Required Date: Reference:	10/29/12 11/16/12	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item II Customer:	<b>D</b> :	•		
Approvals:	Process Pla QC:	n:	Date:	Tooling: SPC (Y/N):		te:	Run	Start Stop	*NR1* *NR2*
Sequence ID/ Work Center II  130  *120*  QC  Quality Control	)	Operation Description QC15- Crosstube Dimen Memo	sional Check	Set Up/ Run Hours 0.00	Tool ID	Tool # Plan Code	•	ty N	Reject Insp. Rumber Stamp
*140 *140* Crosstubes Crosstubes		DT8549,usi 2-Ream hol DT8548 & to ensure al 3-Scribe pa	holes in tube as per Dwg Dng drill table DT8577,set-upe to finish size in tube as ped DT8549. Check dimensions ignment with saddle holes.  That and batch # using vibrate AR LATEX GLOVES WHE or surface damage. Repair of	p towers in hole #7 as per property of the pro	er QSI 10  ing drill Jig es on both cuffs,  212-664-141  TUBE*** Deburr	Rom	Pm _	12-	11-10

•	•										DQA:	Date:	
NCR:	Yes	/ No				WORK ORDER NON-	COI	NFORM	MANCE / UPDATE		QA Closed:	Date:	
Work Ord	er.				:	DISPOSITION			AGAINS	r DE	PARTMENT	/PROCESS	
Part   NCR	No.	-				Rework Scrap Use-as-is Work Order Update		1	Skid-tube Crosstube Machining Small Fal noforming Finishing Large Fab Composite	g g	Pro	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	ption of work order update		nitial	Action		Sign &		
Cause		Date	Step	Qty	C	or Non-conformance	Ch	ief Eng	Description		Date	Verification	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved						•		,	· /		es de		
							AUL	T CATE	GORY	_			-
Landi	Bending Centre Not Concentric to O/S Cracks Crushed/Crimped Cuffs Heat Treat Inspection Strip in Tube			General Bend BOM/Route Broken/Damaged Burrs Contamination Countersink Cut Too Short		Instruct Mainte Mislabe Misread	ion Incomplete ions Incomplete/Unclear enance eled		Ovalized Over/Under Part Incorre Part Lost/M Part Moved Positioned V	Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled Other			
l		Ripples in Bend				Drill Holes		Offset					

Out of Calibration

Out of Sequence

Outside Dimensions

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

Work Ord October-30-12				*924	.13*							Page 3
Item ID: Revision ID:	D212-664-10	01	· . . •	Accept	*N90	<b>೧</b> 040	100	)*	Setup	Start	171	S1*
Item Name:	Crosstube Fw	d High	¥. 							Stop	*N:	S2*
Start Date:	10/29/12	Start Qty: 1.00	*1*	<b>:</b>	Cust Iter	m ID:						
Required Date: Reference:	: 11/16/12	Req'd Qty: 1.00	*1*	•	Custome							
Approvals:	Process Pla	ın;	Date:	Tooling:		Date:			Run	Start	*N	R1*
				SPC (Y/N):		Date:				Stop	*N	R2*
Sequence ID/ Work Center I	D	Operation Description		Set Up/ Run Hours	Tool II	Tool#	Plan Code	Accept Qty	Rej Qty		Reject Number	Insp. Stamp
150		QC5- Inspect part comp	oleteness to step on W/	O 0.00								DAS
*150*			ł					/				05 / 12://
QC Quality Control		Memo *** WEAR	R LATEX GLOVES W	0.00 HEN HANDLING CROSSTU	BE***							( <del>)</del>
160				0.00								
*160*								1.		Ø	ø	Af
HandFXtube		Memo		0.00						Ψ		Al 12-11-13
Hand Finishing Cro	osstubes	*** WEAF	R LATEX GLOVES W	HEN HANDLING CROSSTU	BE***							
		1- CLEAN	CROSSTUBE WITH	WASH'N WIPE								
170 *170*		Outsource process - NE	OT per QSI038 4.1	0.00				C <sup>4</sup> C	Z ( .	5 ] [[	///3	
Outsource2		Memo		0.00			. •		$\sim$ 10	$\mathbf{x}^{\prime\prime}$	///	
Outsource process	- NDT		R LATEX GLOVES W	HEN HANDLING CROSSTU	BE***					•	·	

									DQA:	Date:	
NCR: Yes	/ No				WORK ORDER NON-	CONFORM	MANCE / UP		QA Closed:	Date:	,
Work Order:					DISPOSITION			AGAINST DE	PARTMENT/	PROCESS	
Part No				Rework Scrap Use-as-is Work Order Update	-  I	Skid-tube  Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	1	Water Jet d. Eng. Coor. e/Packaging Supplier	Engineering Quality Other	
Root	Root Date Step Qty			Descri	ption of work order update	Initial	Ac	tion	Sign &		
	Date	Step	Qty		or Non-conformance	Chief Eng	l	cription	Date	Verification	QC Inspector
Ooc/Data  iquip/Tooling Operator  Material Setup Other Process Supplier											

Landin	g (	Gear	General					_
		Bending		Bend		Grain	Ovalized	Pressure/Forced
		Centre Not Concentric to O/S		BOM/Route		Hardware	Over/Under tolerance	Temperature/Cure
		Cracks		Broken/Damaged		Inspection Incomplete	Part Incorrect	Weld
		Crushed/Crimped.		Burrs		Instructions Incomplete/Unclear	Part Lost/Missing	Wrong Stock Pulled
		Cuffs		Contamination		Maintenance	Part Moved	
		Heat Treat		Countersink		Mislabeled	Positioned Wrong	 _
		Inspection Strip in Tube		Cut Too Short		Misread	Power Loss/Surge	Other
		Ripples in Bend		Drill Holes		Offset		
		Torque Waves in Extrusion		Drawing		Out of Calibration		
		Turning Sequence		Finish		Out of Sequence		
	Wave/Twist in Tube Folio			Outside Dimensions				

FAULT CATEGORY

Unapproved

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

\*92413\*

Page 4

October-30-12 12:43:15 PM

Item ID: Revision ID:	D212-664-10			Accept	*N900	<b>040</b>	100	)* s	etup Start Stop	171	S1*
Item Name: Start Date: Required Date: Reference:	Crosstube Fw 10/29/12 11/16/12	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item II Customer:	D:			•	"N;	S2*
Approvals:		an:		Tooling: SPC (Y/N):		ite:		F	Run Star Stop	1/1	R1*
Sequence ID/ Work Center II 180 *180* Packaging Packaging		Operation Description Receive & Inspect for Da Packaging Memo		Set Up/ Run Hours 0.00	Tool ID	Tool#	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190 *190* QC Quality Control			LATEX GLOVES WHE	0.00  0.00  N HANDLING CROSSTUBE are as per Dwg D212-664-141							
193 *103* HandFXtube Hand Finishing Cro	osstubes	Crosstubes Chemical Co  Memo  *** WEAR		0.00 0.00 EN HANDLING CROSSTUBI	<u>;</u> ***				φ	_ <i>&amp;</i> _	19-11-13

1- PRESSURE WASH AND THEN USE WASH'N WIPE TO CLEAN CROSSTUBE BEFORE CHEMICAL CONVERSION

											DQA:	Da	ite: _	
NCR: Y	es / N	o			WORK ORDER NON-O	COI	NFORM	MANCE / UF	PDATE					•
											QA Closed:	Da	ite:	
Work Orde	or.				DISPOSITION				AGAINST	DE	PARTMENT	/PROCESS		
Part N	 No				Rework Scrap Use-as-is Work Order Update		Skid-tube Crosstube  Machining Small Fab  Thermoforming Finishing  Large Fab Composite  Initial Action					Water Jet d. Eng. Coor. re/Packaging Supplier		Engineering Quality Other
Root					ption of work order update	1					Sign &			
Cause	Dat	e Step	Qty	(	or Non-conformance	Ch	nief Eng	Des	cription		Date	Verification	'n	QC Inspector
Doc/Data						1								
Equip/Tooling														
Operator						Ì								
Material						1								
Setup		Ī				Į.								
Other					•									
Process								:						
Supplier														
Training														
Unapproved														
	FAULT CATEGORY													
Landi	Landing Gear General General													
Bending					Bend		Grain			L	Ovalized			Pressure/Forced
Centre Not Concentric to O/S			BOM/Route		Hardwa	re		L	Over/Under	tolerance		Temperature/Cure		
	Cracks				Broken/Damaged		Inspecti	ion Incomplete	•		Part Incorre	ct		Weld
	Crush	ed/Crimped	l <u>.</u>		Burrs		Instruct	ions Incomplete	/Unclear		Part Lost/Missing Wro			Wrong Stock Pulled
	Cuffs			Contamination	Г	Mainte	enance		Г	Part Moved			•	

Mislabeled

Out of Calibration

Out of Sequence

Outside Dimensions

Misread

Offset

Positioned Wrong

Power Loss/Surge

Other

Ripples in Bend

Turning Sequence

Wave/Twist in Tube

Heat Treat

Inspection Strip in Tube

Torque Waves in Extrusion

Countersink

Cut Too Short

Drill Holes

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Orde				*924	113*							Page 5
Item ID: Revision ID:	D212-664-1	01		Accept	*N900	<b>040</b>	100	)*	Setup	Start	*N.	S1*
Item Name:	Crosstube Fw	d High								Stop	*N:	S2*
Start Date:	10/29/12	Start Qty: 1.00	*1*		Cust Item II	D:						
Required Date:	11/16/12	<b>Req'd Qty:</b> 1.00	*1*		<b>Customer:</b>						•	
Reference:			•						_			
Approvals:	Process Pla	an:	Date:	Tooling:	Da	te:			Run	Start	*N	R1*
	QC:		Date:	<b>SPC (Y/N):</b>	Da	te:				Stop	*N	R2*
Sequence ID/ Work Center II	D	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept	Re Qt		Reject Number	Insp. Stamp
195		QC7-Inspect Chemical (	Conversion Coat	0.00	610							
*195*				< <	The state of the s	7						
QC		Memo		0.00	Sinne	>						
Quality Control		*** WEAR	LATEX GLOVES WHE	N HANDLING CROSST	OBE***							
200		Spray Painting per QSIG	005 4.2	0.00								
*200*		SprayPaint						١		Ø	B	ALC
SprayPaint		Memo		0.00						·	<b>-</b>	12-11-13
Spray Painting		*** WEAR	LATEX GLOVES WHE	N HANDLING CROSST	UBE***							
		1-Prime ins	ide and outside crosstube	e as per QSI 005 4.2								
		2-Paint out QSI 005 4.:		D D212-667-141 with Wh	ite Imron as per							
		PRIME: \\ Start Time: Fininsh Ti										

PAINT: 12 3591 Start Time: 4:00 Finish Time: 4:45

NCR:	Yes	/	No

# WORK ORDER NON-CONFORMANCE / UPDATE

DOA SWY Date: 12/1/24

	QA Closed: // Date: //													
Work Ord	er:	92	413			DISPOSITION	,		·	AGAINST DE			3	
		D21	_		101	Rework X Scrap Use-as-is Work Order Update		I Therm	Skid-tube Machining noforming Large Fab	Crosstube X Small Fab Finishing Composite	Pro	Water Jet d. Eng. Coor. X re/Packaging Supplier	Engineering Quality Other	
Root					Desc	ription of work order update	lı	nitial	Ac	tion	Sign &			
Cause		Date	Step	Qty		or Non-conformance	Chi	ief Eng	Desc	ription	Date	Verification	QC Inspector	
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved	r ess lier ing proved			Empl. with	oyee Painted tube out inspection low added.	1	Lars Janes	window ADD Set at		005 12:11:16	Date Verification QC Inspect  OAS  OS  OS  OS  OS  OS  OS  OS  OS  O			
						F	AUL	T CATE	GORY					
Landi	ng (	Gear			_	General	_				-		_	
	Landing Gear  Bending  Centre Not Concentric to O/S  Cracks  Crushed/Crimped			o/s	Bend BOM/Route Broken/Damaged Burrs	Grain  Hardware  Inspection Incomplete  Instructions Incomplete/Unclear  Ovalized  Over/Under tolerance  Part Incorrect  Part Lost/Missing			Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled					
		Cuffs	-		Γ	Contamination	-	Mainte			Part Moved	_		
		Heat Trea	t			Countersink		Mislabe	eled		Positioned V	Vrong	_	
·	X	Inspection	n Strip in	Tube		Cut Too Short		Misread	d .		Power Loss/	Surge	Other	
·		Ripples in	Bend			Drill Holes	-	Offset						
(فقر	Torque Waves in Extrusion		Drawing	$\vdash$		Calibration								
	Turning Sequence			<b>K</b> Finish		Out of S	Sequence							
	Wave/Twist in Tube			e		Folio		Outside	Dimensions			•		

October-30-12		The second secon		^972	11.3^						Page 6
Item ID: Revision ID: Item Name:	D212-664-			Accept	*N900	0401	<b>N</b> 0*	s	etup Start	173	S1* S2*
Start Date: Required Date: Reference:	10/29/12 11/16/12	Start Qty: 1.00 Req'd Qty: 1.00	*1 *1		Cust Item   Customer:	ID:					
Approvals:		lan:				ate:		R	tun Star Stop	171	R1* R2*
Sequence ID/ Work Center II	<b>D</b>	Operation Description		Set Up/ Run Hours	Tool ID	Tool # Pl	an Ac	cept y	Reject Qty	Reject Number	Insp. Stamp
*210 *210* QC Quality Control		QC14- Inspect Spray Pa <b>Memo</b> Then,Wrap	int in plastic bag to pro	0.00 0.00 tect from scratches				D	(2)	'I · 1 <b>6</b>	
220 *720* Crosstubes Crosstubes			nating surfaces of sup rea with 4105S wash	0.00 0.00 pport and crosstube with 400 gr 'n' wipe	rit sandpaper,			1	<b></b> \$	<u> </u>	12-11-17
<sup>230</sup> *230*		A/R Pr	oseal 890 Batch:	990 per DSI9563 and QSI 015 123103					*		
QC		Memo		0.00	12/11/1						

Quality Control

												DQA:	Da	te:	
NCR:	Yes	/ No				WORK ORDER NON-O	100	<b>NFORM</b>	//ANCE / UP	DATE					•
·											QA	Closed:	Da	te:	
Work Ord	er.					DISPOSITION				AGAINST DE	PAR	TMENT	PROCESS		
Part I	No.					Rework Scrap Use-as-is Work Order Update		Therm	Skid-tube  Machining noforming Large Fab	Crosstube Small Fab Finishing Composite			Water Jet d. Eng. Coor. e/Packaging Supplier		Engineering Quality Other
Root					Descri	otion of work order update		Initial	Ac	tion	S	ign &			
Cause		Date	Step	Qty	C	or Non-conformance	Ch	nief Eng	Desc	ription		Date	Verificatio	n	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved		Date Step Qty													
							AUL	T CATE	GORY						
Landi		Gear  Bending  Centre Not Concentric to O/S  Cracks  Crushed/Crimped.  Cuffs			o/s	General Bend BOM/Route Broken/Damaged Burrs Contamination		┥ —			Ovalized Over/Under tolerance Part Incorrect Part Lost/Missing				Pressure/Forced Temperature/Cure Weld Wrong Stock Pulled
		Heat Trea	n Strip in	Tube		Countersink Cut Too Short		Mislabe Misread	led		Pos	t Moved itioned V ver Loss/	_		Other
I	Rinnles in Bend					Drill Holes	1	Offcot							

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Torque Waves in Extrusion

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Orde October-30-12 1				*924	13*						Page 7	
tem ID:	D212-664-10	01		Accept	*N900	040	100	)* s	etup Star	1 7	S1*	
tem Name:	Crosstube Fw	d High							Stop	, *N	S2*	
Start Date: Required Date:	10/29/12 11/16/12	Start Qty: 1.00 Req'd Qty: 1.00	*1* *1*		Cust Item I Customer:							
Reference:	11/10/12	neq a Qiy. 1.00	"1"		Customer.							
Approvals:		an:		Tooling:		ate:		R	tun Star Stop		R1*	
	QC:		Date:	SPC (Y/N):	D	ate:				*N	R2*	
Sequence ID/ Work Center ID	)	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp	
<sup>240</sup> <b>*240</b> *		Pick Kit		0.00				/ <u>X</u> _			8	
Packaging Packaging		Memo		0.00				, -			D-11-	-[
250 <b>+0 -</b> 0 <b>+</b>		QC4- 100% Inspect kits	for completeness	0.00 OAS 0.00 15								
*250* QC Quality Control		Memo		12 11 10	<b>,</b> }							
				0.00							1	

SHIP

Packaging

Memo

Identify and pack for shipping as per PPP D212-664-101

\*260\*
Packaging

Packaging

NCR:	⁄es	/ No				WORK ORDER NON-	COI	NFORN	ANCE / UPI	DATE			•
											QA Closed:	Date:	
Work Orde	er:					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Part N	- . No.					Rework Scrap Use-as-is Work Order Update		Therm	Skid-tube  Machining  noforming  Large Fab	Crosstube Small Fab Finishing Composite	4	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	otion of work order update		Initial	Act	tion	Sign &		
Cause		Date	Step	Qty	(	or Non-conformance	Ch	nief Eng	Descr	ription	Date	Verification	QC Inspector
Doc/Data	Ш												
Equip/Tooling													
Operator													
Material													
Setup													
Other													
Process	_												
Supplier													
Training													
Unapproved							1				l		
						······································	AUL	T CATE	GORY				
Landi					<del></del>	General	_	(' 1		_	1	_	٦ .
	$\vdash$	Bending				Bend	$\vdash$	Grain		<u> </u>	Ovalized		Pressure/Forced
	$\blacksquare$	Centre No	ot Concer	ntric to (	<sup>O/S</sup>	BOM/Route	_	Hardwa		<u> </u>	Over/Under	<del>                                     </del>	Temperature/Cure
	$\vdash$	Cracks	<b>.</b>		-	Broken/Damaged	_	1 '	on Incomplete		Part Incorre		Weld
	_	Crushed/	Crimped.		<u> </u>	Burrs	$\vdash$	-1	ions Incomplete/l	Jnclear	Part Lost/Mi	issing	Wrong Stock Pulled
	-	Cuffs			<u> </u>	Contamination	$\vdash$	Mainte			Part Moved		
	$\dashv$	Heat Trea		<b>-</b> .	<b> </b>	Countersink	<u> </u>	Mislabe			Positioned V	_	٦
		Inspection		Tube	<u> </u> _	Cut Too Short	<b> </b>	Misread		<u>L</u>	Power Loss/	Surge	Other
		Ripples in			-	Drill Holes	<u> </u>	Offset					
	Torque Waves in Extrusion			า	Drawing	1	Out of C	Calibration					

Out of Sequence

Outside Dimensions

DQA:

Date:

Turning Sequence

Wave/Twist in Tube

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Ord October-30-12	•			*92		Page	
Item ID: Revision ID: Item Name:	D212-664-			Accept	*N900040100*	Setup Start Stop	*NS1* *NS2*
Item Name:Crosstube Fwd HighStart Date:10/29/12Start Qty:1.00Required Date:11/16/12Req'd Qty:1.00Reference:			*1* *1*		Cust Item ID: Customer:		14.17
Approvals:	Process P QC:	lan:	Date:	Tooling: SPC (Y/N):	Date:	Run Start Stop	*NR1* *NR2*
Sequence ID/		Operation		Set Up/	Tool ID Tool # Plan Acc	cept Reject	Reject Insp.

Set Up/

0.00

0.00

Run Hours

Operation

Description

QC21- Final Inspection - Work Order Release

Memo

Sequence ID/

\*270\*

Quality Control

270

Work Center ID

W 12.11.19

Qty

Qty

Code

Page 8

Number Stamp

MLS 12-11-19

											DQA:	Date:		
NCR:	Yes	/ No				WORK ORDER NON-O	cor	NFORM	<b>MANCE / UPD</b>	ATE			•	
									-		QA Closed:	Date:		
Work Ord	er:					DISPOSITION				AGAINST DE	PARTMENT	/PROCESS		
Part I	No.			***************************************		Rework Scrap Use-as-is Work Order Update	,	f Therm	Skid-tube  Machining  noforming  Large Fab	Crosstube Small Fab Finishing Composite		Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other	
Root					Descri	ption of work order update		Initial	Acti	on	Sign &			
Cause		Date	Step	Qty	(	or Non-conformance	Ct	nief Eng	Descri	ption	Date	Verification	QC Inspector	
Doc/Data														
Equip/Tooling														
Operator														
Material							1							
Setup														
Other														
Process	П													
Supplier			1				İ				:			
Training														
Unapproved											<u> </u>			
						F	AUI	LT CATE	GORY					
Landi	ng (	Gear				General								
		Bending				Bend		Grain			Ovalized		Pressure/Forced	
		Centre Not Concentric to O/S				BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure	
		Cracks				Broken/Damaged	Г	Inspecti	on Incomplete		Part Incorre	ct	Weld	
	Crushed/Crimped.					Burrs		-1	ions Incomplete/U	nclear	Part Lost/M	issing	Wrong Stock Pulled	
		Cuffs				Contamination		Mainte			Part Moved	_	-	
		Heat Trea	it			Countersink		Mislabe	led		Positioned \	oned Wrong		
		Inspection Strip in Tube				Cut Too Short		Misread	i		Power Loss/	Other		

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

October-30-12 12:43:14 PM

Work Order ID:

92413

Parent Item:

D212-664-101

Parent Item Name:

Crosstube Fwd High

**Start Date:** 10/29/12

Required Date: 11/16/12

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:E04.02.16ReformatKJ/DS

IPP Rev:F 06-03-29

Remove Coments on Pick List JLM

IPP Rev:G 07-04-30 As per Rev C

JLM

IPP Rev:H 11.04.26 inspection

strip ecn	11-549	EC	verified	by:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D212-664-101TRN Crosstube Turning Detail		Manufactured	No			110	Each	2.0000	1	1			
				LG 898		Loc Otv 2 1 1	<u>L</u>	oc Code		0	mo	12/11	1/08
D3595-063-450 RUBBER CUSHION		Manufactured	No			230	Each	202.8895	4	4.21052	263 AB	19-11-	-17_
				<b>Location</b>		Loc Qty	<u>L</u>	oc Code					
				FG		5							
				884	<del>1</del> 22	5				····			
				LG		0.28							
				825	511	0.28				<u> </u>			
				LG051		187.5							
				80		1.7							
					715	2							
					478	130							
					916	1.8 52				77			
					968					Z			
				MAT052	353	10.109474							
•					893	2							
					113	0.56			<del></del>	<u> </u>			
					354	0.2							
					113	0.349474							
					597	1							

			DQA:	Date:	
				-	<del></del>
ICR.	Voc /	No	WORK ORDER NON-CONFORMANCE / LIPDATE		•

											QA Closea:	Date	1:
Work Orde	er:		·	-		DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
Part f	•					Rework Scrap Use-as-is Work Order Update		Thern	Skid-tube Machining noforming Large Fab	Crosstube Small Fab Finishing Composite	-	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					Descri	ption of work order update		nitial	A	ction	Sign &		
Cause		Date	Step	Qty		or Non-conformance	Ch	ief Eng	Des	cription	Date	Verification	QC Inspector
Doc/Data													
Equip/Tooling													
Operator													
Material												:	
Setup													
Other													
Process													
Supplier													
Training	Ш						1						
Unapproved			! 								<u> </u>		
				-		· · · · · · · · · · · · · · · · · · ·	AUL	T CATE	GORY				
Landi						General					<b>-</b>		_
	$\vdash$	Bending				Bend	Ш	Grain			Ovalized		Pressure/Forced
	—	Centre No	ot Concer	ntric to	o/s	BOM/Route	Ш	Hardwa	re		Over/Under	tolerance	Temperature/Cure
		Cracks				Broken/Damaged	$\vdash$	•	ion Incomplete	_	Part Incorre	<b>├</b>	Weld
	${f -}$	Crushed/Crimped.			<u> </u>	Burrs	$\vdash$		ions Incomplete	/Unclear	Part Lost/M	issing	Wrong Stock Pulled
	Н	Cuffs				Contamination	-	Mainte			Part Moved		
		Heat Treat		<u> </u>	Countersink	-	Mislabe			Positioned V			
	Inspection Strip in Tube			Tube	<u> </u>	Cut Too Short	_	Misread	i	L	Power Loss/	Surge	Other
		Ripples in				Drill Holes	-	Offset					
	-	Torque W			ո	Drawing	$\vdash$		Calibration				
	Н	Turning S	-			Finish	Ш	Out of S	Sequence		<u>.</u>		
	1	Wave/Twist in Tube			}	Folio	1	Outside	Dimensions				

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October-30-12 12:43:15 PM

October-30-12 12:43:15 PM

Work Order ID: Parent Item:	92413 D212-664-101						Start I	Date: 10/29/12		Required Date: 11/16/12
Parent Item Name:	Crosstube Fwd High	ı		,			Start	<b>Qty:</b> 1.00		Required Qty: 1.00
MS21920-25		Purchased	No		220	Each	111.0000	4	4	Af 12-11-17
Clamp(per MIL-DTL-87	783C)							45.124.	<del></del>	
				Location	Loc Oty		Loc Code			
-				FG	2					
				120920	:	2				
				LG050	7-	1				
				116264	-	2				
				117998	•	4				•
				118142		4				•
				119339		2		7		
				119746 120475		2				
				120473		3 7				
				123243	5	•		(i)		
				LG051	3					
				(22838)	3			(3)		
D2893-1		Manufactured	No	122030	220	Each	33.0000	2	2	/0
2.75 Support		Manufacturea								Af 12-11-17
				Location	Loc Qty		Loc Code			
				LG052	3	3				
				72865		2				
				87289	1	1				
				89624	2	0		2		
D3428-1		Manufactured	No		240	Each	11.0000	1	$\mathbf{A}$	93,59
Placard								<u> </u>	13	10481
				<b>Location</b>	Loc Qty	<u>'</u>	Loc Code			SO17 11 R
				ST044	1					SP 12-11-E
	•			90993		1				

									DQA:	Date:	
NCR: Ye	es / No				WORK ORDER NON-	CONFOR	MANCE / U	PDATE	QA Closed:	Date:	,
Work Order	•				DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
Part No					Rework Scrap Use-as-is Work Order Update	The	Skid-tube  Machining moforming Large Fab	Crosstube Small Fab Finishing Composite	1	Water Jet d. Eng. Coor. re/Packaging Supplier	Engineering Quality Other
Root					ption of work order update	Initial	1	Action	Sign &		
Cause	Date	Step	Qty	(	or Non-conformance	Chief En	g Des	scription	Date	Verification	QC Inspector
Doc/Data	_										
quip/Tooling	_		]								
Operator	_										
Material				ļ 							
Setup							1				
Other											
Process											
Supplier	7									į	
Training	7						1				
Jnapproved	7										
		·	<del></del>		F	AULT CAT	EGORY	***			•

Landi	ng C	iear _	General	_		
		Bending	Bend	Grain	Ovalized	Pressure/Forced
		Centre Not Concentric to O/S	BOM/Route	Hardware	Over/Under tolerance	Temperature/Cure
•		Cracks	Broken/Damaged	Inspection Incomplete	Part Incorrect	Weld
		Crushed/Crimped.	Burrs	Instructions Incomplete/Unclear	Part Lost/Missing	Wrong Stock Pulled
		Cuffs	Contamination	Maintenance	Part Moved	-
		Heat Treat	Countersink	Mislabeled	Positioned Wrong	•
		Inspection Strip in Tube	Cut Too Short	Misread	Power Loss/Surge	Other
		Ripples in Bend	Drill Holes	Offset		
		Torque Waves in Extrusion	Drawing	Out of Calibration		
		Turning Sequence	Finish	Out of Sequence		
		Wave/Twist in Tube	Folio	Outside Dimensions		

October-30-12 12:43:15 PM

Work Order ID:	92413							<b>Q</b> 1	10/20/12	n : ID	11/1//12
Parent Item:	D212-664-101								Date: 10/29/12		ate: 11/16/12
Parent Item Name:	Crosstube Fwd High	ı						Start	<b>Qty:</b> 1.00	Required (	
AN6-35A BOLT		Purchased	No			240	Each	54.0000	4	450	
				Location	<u>l</u>	Loc Qty		Loc Code		$\circ$ i	
				342		1					
					121181	1					
				ST340		53					
					122416	33			-4/	<u></u>	,
					122800	20				<del></del>	
AN6-36A Bolt		Purchased	No			240	Each	71.0000	4	<b>₹</b>	5
				Location	<u>n</u> .	Loc Oty		Loc Code		<b>J</b> .	·
				ST340	,	61					
					- 122416	11					
					122993	50			<b>4</b> /k		
				ST342	-	10	ı				
					118422	2					
					119449	i					4.
					120187	4					
					120423	3				•	
MS21042L6 Nut		Purchased	No			240	Each	982.0000	6	500	-11-19
				Locatio	<u>n</u>	Loc Oty		Loc Code		•	
				314		243	;				
					122441	243	;		(0	X_	
				ST300		239	)				
					117677	25	5			•	
					118384	3	3				
					118927	48				<u>.</u>	
•					119075	4					
					120308	159					
				ST314		500				- A	
					123248	350					
					123355	150	)			<del></del>	

												DQA:	Da	te:	
NCR:	Yes	/ No				WORK ORDER NON-C	100	<b>NFORM</b>	MANCE / UP	DATE		·			
												QA Closed:	Da	te:	
Work Ord	Work Order:				DISPOSITION				AGAINST DE	ΞF	PARTMENT/PROCESS				
Part No. NCR No.			Rework Skid-tube Crosstube Machining Small Fab Thermoforming Finishing Work Order Update Large Fab Composite			Water Jet Prod. Eng. Coor. Rec/Store/Packaging Supplier		Engineering Quality Other							
Root						otion of work order update		Initial	Ac	tion	T	Sign &			
Cause		Date	Step	Qty	C	or Non-conformance	Ch	nief Eng	Desc	ription		Date	Verificatio	n	QC Inspector
Doc/Data Equip/Tooling Operator Material Setup Other Process Supplier Training Unapproved															
							AUL	T CATE	GORY				<del></del>		
Landi	_	1				General	_	1		_	_				1
	⊢	Bending				Bend		Grain		_	-	Ovalized			Pressure/Forced
	⊢	Centre No	ot Concer	ntric to (	o/s	BOM/Route	_	Hardwa		<u> </u>	╛	Over/Under	tolerance		Temperature/Cure
	-	Cracks				Broken/Damaged	_	1	on Incomplete	_	$\dashv$	Part Incorred		_	Weld
		Crushed/	Crimped.		<u> </u>	Burrs	_	4	ions Incomplete/	Unclear	⊣	Part Lost/Mi	ssing		Wrong Stock Pulled
	ldash	Cuffs			<b> </b>	Contamination	_	Mainte				Part Moved			
	L	Heat Trea			<u> </u>	Countersink		Mislabe	led		╛	Positioned V	Vrong		1
	Inspection Strip in Tube			Cut Too Short	1	Misread				Power Loss/	Surge	1	Other		

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

**Picklist Print** 

Page 4 October-30-12 12:43:15 PM

Work Order ID:

92413

Parent Item:

D212-664-101

Parent Item Name:

Crosstube Fwd High

AN960JD616

Washer

NAS1149D0663J

Purchased

No

240

Each

0.0000

18

**Start Date:** 10/29/12

Start Qty: 1.00

12-11-19.

Required Date: 11/16/12

Required Qty: 1.00

											DQA:	Da <sup>*</sup>	te:	
NCR:	Yes	/ No				WORK ORDER NON-O	COI	NFORM	MANCE / UPDATE					
				···							QA Closed:	Da	te:	
Work Ord	or.					DISPOSITION			AGAINST	DE	PARTMENT	/PROCESS		
Work ord	٠,٠			•		Rework	]		Skid-tube Crosstube		]	Water Jet		Engineering
Part I	No.					Scrap		,	Machining Small Fab	-	Pro	d. Eng. Coor.		Quality
1			,			Use-as-is		Thern	noforming Finishing	3	Rec/Store/Packaging			Other
NCR No.			Work Order Update			Large Fab Composite		]	Supplier					
			1	1			1	1 111 1			l c: o		1	
Root					1	ption of work order update		Initial	Action		Sign &			061
Cause	Т	Date	Step	Qty	•	or Non-conformance	Cr	nief Eng	Description		Date	Verificatio	n	QC Inspector
Doc/Data	-		•											
Equip/Tooling	<u> </u>													
Operator	<u> </u>		]											
Material	<u> </u>				,		İ							
Setup	H													
Other	<u> </u>						ŀ							
Process	<u> </u>				,									
Supplier	<u> </u>													
Training	<u> </u>					•								
Unapproved			<u> </u>	<u> </u>	<u></u>		1							
						<del> </del>	AUI	LT CATE	GORY					<del></del>
Landi	ng (	1				General		7			7		_	1
		Bending				Bend	ļ	Grain		L	Ovalized			Pressure/Forced
Centre Not Concentric to O/S			BOM/Route		Hardwa	re	$\perp$	Over/Under	tolerance		Temperature/Cure			
		Cracks			L	Broken/Damaged		Inspect	on Incomplete		Part Incorre	ct		Weld
		Crushed/	Crimped.			Burrs		Instruct	ions Incomplete/Unclear	L	Part Lost/Mi	issing		Wrong Stock Pulled
		Cuffs				Contamination	L	Mainte	enance		Part Moved			
1		Heat Trea	at			Countersink		Mislabeled			Positioned V	<b>V</b> rong		

Misread

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Power Loss/Surge

Other

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

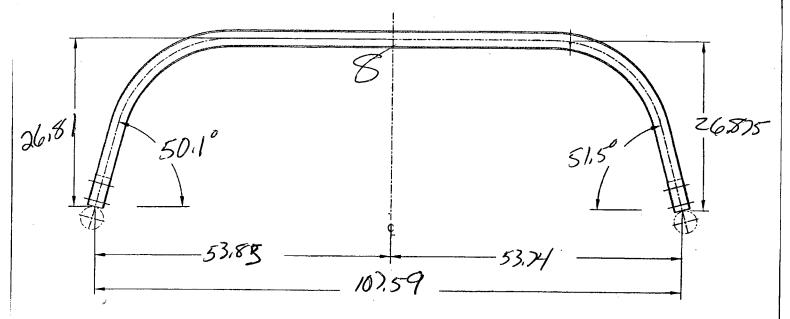
Drill Holes

Drawing

Finish

DART AEROSPACE LTD	Work Order:	92413
Description: Crosstube High Fwd (205/212/412)	Part Number:	D212-664-101
Inspection Dwg: D212-664-141 Rev: D	· · · · · · · · · · · · · · · · · · ·	Page 1 of 1

Required Dimension	Min	Max	
Height	26.79	27.05	
1/2 Span	53.59	53.85	
Angle	49	52	
Total Span	107.18	107.7	
Bending Passes	3		
Crushing		6%	



	Side A	Side B
Bending Passes	8	4
Crushing	4.183	3.041
	Comments	
	200	DAG 03
QC15 Inspe	ection	79
Date	17 - 11-	R

Rev	Date	Change	Revised by	Approved
Α	07.02.06	New Issue	KJ/JM	
В	08.04.21	Dwg Rev updated	KJ/JM	
С	10.04.01	Dwg Rev updated	KJ . O.	
D	12.04.16	Added bending, crushing dimensions	KJ 🖎	W

Item	Qty -141	Qty -141B	Part Number	Description
1	х		D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		Х	D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
3	1	1	D6005-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2: ADHESIVE)

#### **GENERAL NOTES:**

В

1) MATERIAL: MANUFACTURED FROM D6005-128

FINISHED LENGTH = 126.514±0 020

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

PAINT OUTSIDE PER DART QSI 005 4.2 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED

UNITS: INCHES UNLESS OTHERWISE NOTED.

BREAK SHARP EDGES: 0.005 TO 0.010 MAX.

IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS

7) WEIGHT: D212-664-141 = 33.6 lbs (PER IIN-D212-664) D212-664-141B = 33.6 lbs (PER IIN-D212-664)

PART IS SYMMETRIC ABOUT CENTERLINE.

RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALY, TRANSITION SHOULD BE SMOOTH.

10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS

11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.

12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.

13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE

14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

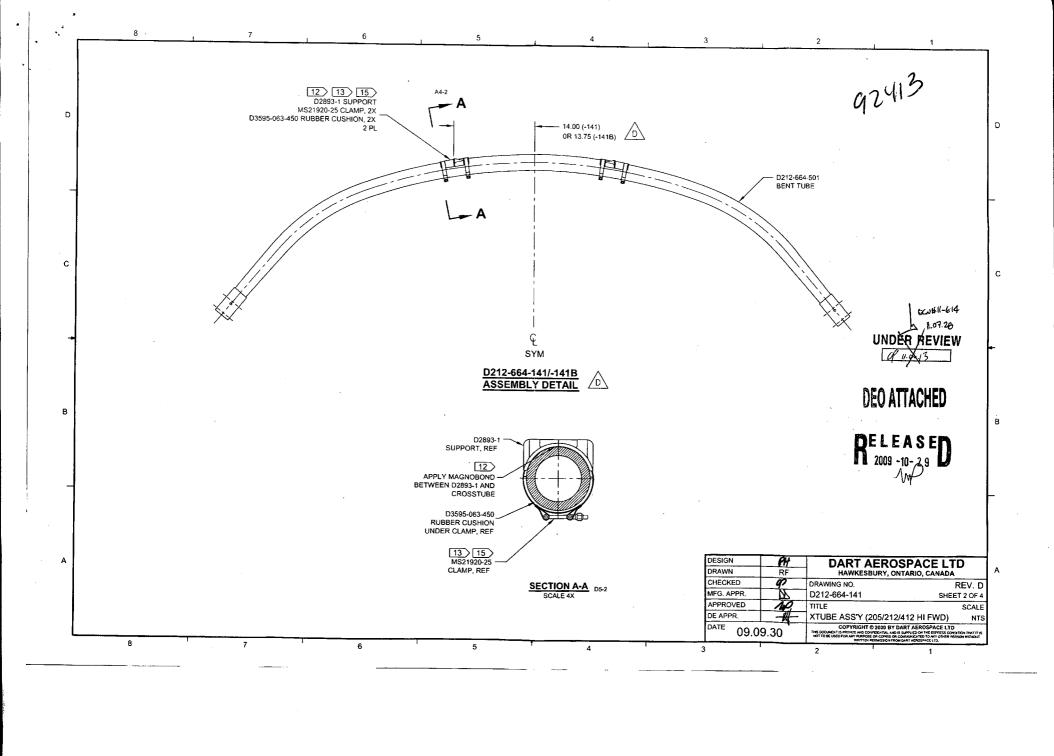
SHOP COPY RETURN TO ENGINEERING UNCONTROLLED COPY SUBJECT TO AMENDMENT WITHOUT MOTICE

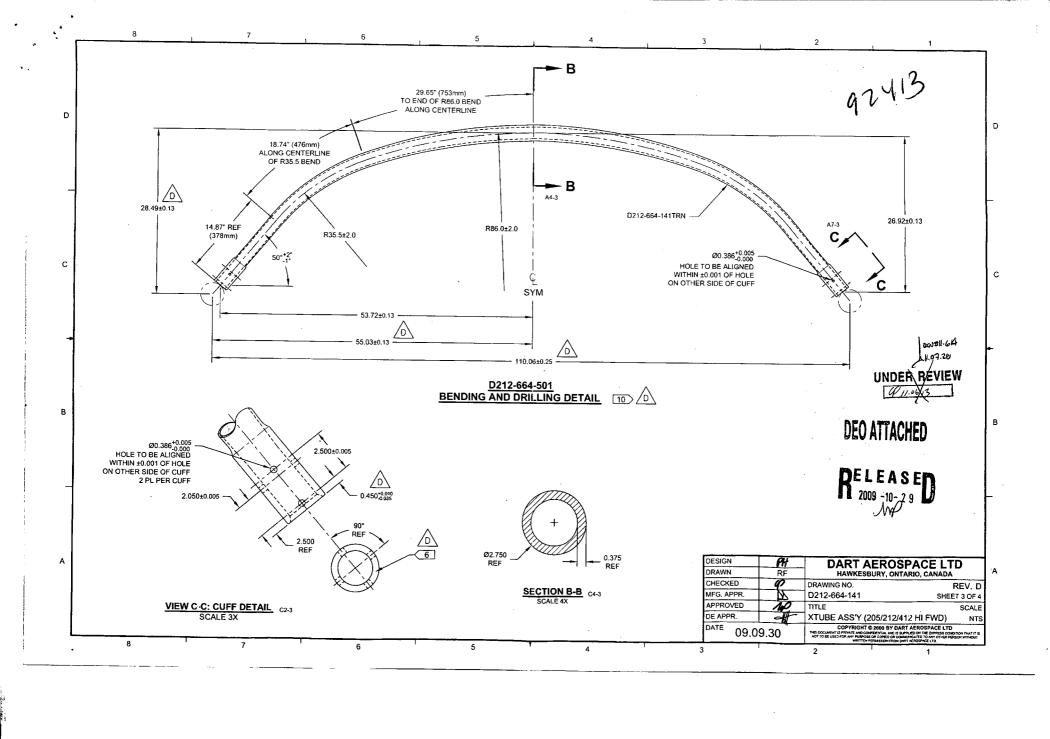
WORK ORDER NO 92413 MLS

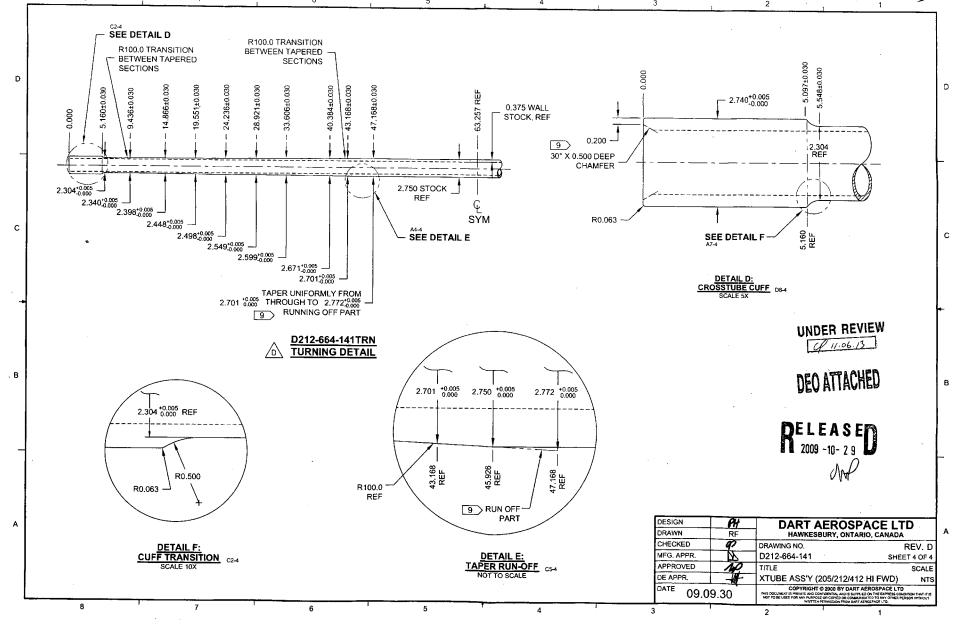
REMOVED FROM WIDER REVIEW PER UNDER REVIEW CON # 11-614

DEO ATTACHED

D	REORG TO CUR	ANIZED VIEW	GENERAL NOTES/PART LIST; /S AND REFORMATTED DRAWING /ARDS; ADD -141B (ZN B4-2, D4-2);	RF	09.09.30			
	& B6-3);	RELOCATED TURNING DE	D TOLERANCES (ZN B4-3, C6-3, C8-3 ) FLAG #6 PER PAR 08-046 (ZN A5-3); TAIL & UPDATED TOLERANCE TO					
С			ASION STRIP; ADD MAGNOBOND VERSE CLAMPS	PH	07,03.08			
В	ADD H SKIDTI	OLES FOR C UBES	PH	05.02.04				
Α	NEW IS	SSUE		PH	00.12.12			
REV.			DESCRIPTION	BY	DATE			
DESIGN		PH	DART AEROSP	ACF	LTD			
DRAWN		RF		HAWKESBURY, ONTARIO, CANADA				
CHECK	ED	97	DRAWING NO.		REV. D			
MFG, APPR.		P	D212-664-141	s	HEET 1 OF 4			
APPROVED 10		10	TITLE		SCALE			
DE APP	R.		XTUBE ASS'Y (205/212/412 HI FWD) NTS					
DATE	09.0	9.30	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED OF THE SUPPLESS CONCITION THAT IT IS					







DRAWING NO.	TITLE	REV. D	DART AEROSPACE LTD	D.E.O. NO.	SHEET NO.	SCALE
D212-664-141	XTUBE ASSY (205/212/		ENGINEERING ORDER	D212-664-141-D-1	SHEET 1 OF 2	NTS
DRAWN	CHECKED	P	MFG. APPR. &	APPROVED MP	DE APPR.	
DATE 11.04	.07 DATE	11, 64, 11	DATE ((.04.(2	DATE 11/04/12	DATE 11.04.12	

PURPOSE:

ADD AN INSPECTION WINDOW TO UNDERSIDE OF CROSSTUBE.

CHANGE:

NOTES 2 OF SHEET 1 IS AMENDED AS FOLLOWS:

<u>IS:</u>

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

MASK UNDERSIDE OF CROSSTUBE AS SHOWN (HATCHED AREA) AND

PAINT OUTSIDE PER DART QSI 005 4.2

REMOVE MASKING AND APPLY CLEAR COAT

WAS:

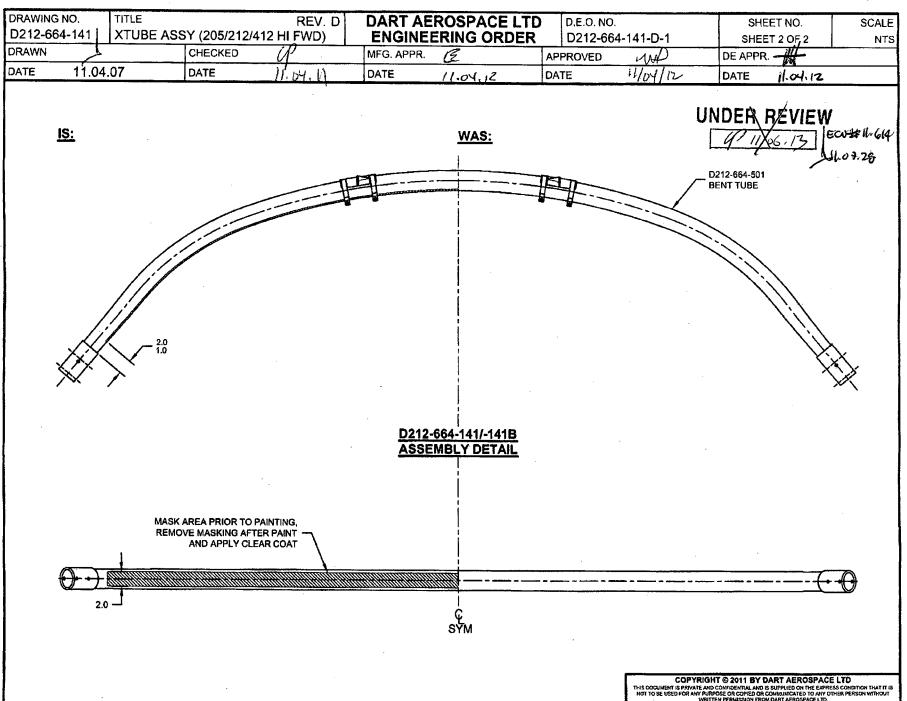
2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

PAINT OUTSIDE PER DART QSI 005 4.2

RELEASED 2011-04- 18

UNDER REVIEW



DRAWING NO.	TITLE REV D	D. 100 100 100 100 100 100 100 100 100 10	<del></del>	<del>, </del>	<del></del>
	1/LV, D	DART AEROSPACE LTD	D.E.O. NO.	SHEET NO.	SCALE
D212-664-141	CROSSTUBE ASS'Y (205 HI FWD)	<b>ENGINEERING ORDER</b>	D212-664-141-D-2	SHEET 1 OF 1	NTS
DRAWN ()	CHECKED A>S	MFG. APPR	APPROVED IN	DE APPR.	
DATE 11.07	15 DATE 11.07.20	DATE 11.07.21	1. / 1	DATE 11.07.21	

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

# **CHANGE:**

IS:

Qty -141	Qty -141B	Part Number	Description
A/R	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2
	-141	-141 -141B	-141 -141B

## WAS:

7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023
	İ			ADHESIVE (TEXTRON/BELL SPEC. 299-947-100,
				TYPE II, CLASS 2 ADHESIVE)

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

#### IS

- 12) TO INSTALL D2893-1 SUPPORT: ABRADE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

### WAS:

- 12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.



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DRAWING N	IO.   TITLE		REV. D	DART AEROSPACE I	LTD D.E.O. NO.	SHEET NO.	SCALE
D212-664	-141 XTURE	ASSV (205/212	/412 HI FWD)			SHEET NO.	SCALE
!	TTT XTODE	7001 (2001212	74 12 HI F VV D)	ENGINEERING ORD	<b>ER</b>   D212-664-141-D-3	SHEET 1 OF 1	NTS
DRAWN	AJS	CHECKED	P	MFG. APPR.	APPROVED NO	DE APPR.	
DATE	12.06.28	DATE	12.07.05	DATE 12.07.05	DATE 12.07.05	DATE 12.07.05	

## PURPOSE:

ADD NEW CONFIGURATION WITH ANODIZED FINISH

# ADD -141F CONFIGURATION TO PARTS LIST AS SHOWN BELOW:

Item	Qty -141	Qty -141B	Qty -141F	Part Number	Description
1	Х			D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		Х		D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
			Х	D212-664-141F	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD) (ANODIZED)
3	1	1	1	D6005-128	CROSSTUBE
4	2	2	2	D2893-1	SUPPORT
5	4	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

\*NOTE ITEM 7 HAS BEEN UPDATED IN ACCORDANCE WITH DEO D212-664-141-D-2

### **AMEND NOTE 2 AS FOLLOWS:**

<u>IS:</u>

2) FINISH -141 & -141B ONLY: a) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

b) PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

c) MASK UNDERSIDE OF CROSSTUBE AS SHOWN IN DEO D212-664-141-D-1

d) PAINT OUTSIDE PER DART QSI 005 4.2

e) REMOVE MASKING AND APPLY MATTE CLEAR COAT

FINISH -141F: a) ANODIZE PER MIL-A-8625. TYPE II. CLASS 1.

b) ALODINE (DO NOT ETCH) PER QSI 005 4.1.2

c) PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2

d) MASK UNDERSIDE OF CROSSTUBE AS SHOWN IN DEO D212-664-141-D-1

e) PAINT OUTSIDE PER DART QSI 005 4.2

f) REMOVE MASKING AND APPLY MATTE CLEAR COAT

\*NOTE: BETWEEN FINISHING OPERATIONS EXTREME CARE MUST BE TAKEN NOT TO CONTAMINATE OR DAMAGE FINISHED SURACES.

WAS: (UPDATED PER DEO D212-664-141-D-1)

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
MASK UNDERSIDE OF CROSSTUBE AS SHOWN IN DEO D212-664-141-D-1
PAINT OUTSIDE PER DART QSI 005 4.2
REMOVE MASKING AND APPLY CLEAR COAT



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CLIENT	Dart A	FRIO) PACE	<u>:</u>		DATE	Nov. 13/12	TIME A	M 🗷 PM 🗆
ATTENTION	ANI	DY			ACUREN JOB NO	188-12	- co81	5
ADDRESS	1270 AS	BER DEEN	ST		PO/WO No.			
	MANKE 8	Bully 0	فر	-	WORK LOCATION	SME		
			<u> </u>			D. ASTM 1417/051-03	REV./DATE	2005
PROJECT		KPI	<i>a</i> ~	C/L	oss Tub	3ES		
ITEM(S) EXAMINED				18				
JOB DESCRIPTION	ON	PROCEDURE No. L	Tana 2 RE	v./DATE	2008	TECHNIQUE NO. LT-	2∡ REV./DATE	8008
PART NO.	SEE	RESULT				<del></del>		mous
SCOPE +	WETFL	1. NESCEN		YE F		ANT IN SIEU		rs.AS
COMPLE-	<del></del>	THE 100°			SunFA			
TEST DETAILS			<u> </u>	V				
METHOD	<b>⊿</b> FLUOR	ESCENT	☐ VISIBLE		WATER WASH	SOLVENT RE	MOVABLE [	POST EMULSIFIED
FAMILY BRAND	MAGNAFI				BLACK LIGHT S/N	1 /6459 □ OUTPUT > 10	00 μ W/cm² 〔	☐ AMBIENT < 2 fc
PENETRANT	2-67	MINIMUM DWELL TIN		MIN.		☐ FLASHLIGHT ☐ TROUBLELIG	SHT 🔲 OUTPUT	>100 fc @ SURFACE
PENETRANT REMOVE DEVELOPER	VER HEOD	MINIMUM DRY TIME MINIMUM DWELL TIM	>10 //E 10	Min. Min.	OTHER LIGHT METER S/N	LA3120 108869	CAL DUE DA	ATE 11/24/12
DEVELOPER TYPE	Non Aque	EOUS AQUEOUS	D DF		LIGITI INILITATION	10000	<u> </u>	njo y c
TEST SURFACE								
SURFACE CONDITIO			WELDED	-:	MACHINED	SHOT BLASTED		AN BARE METAL
	ATURE - <- 4°C/ 20		°C/ 20°F TO	10°C/50°	F	✓ 10°C/50°F TO 52°C/12	5°F ⊔ > 5∠	2°C/125°F
RESULTS-	· · · · · · · · · · · · · · · · · · ·	IMPERIAL)	1,00gB	TREJECT			XX	
ITEM	COMMI	ENIS	ACCL	. Incoeur				
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that all descriptions, comm representations or warrants data or other information p Standard of Care	ents and expressions of opini ies. Acuren Group Inc. is not provided by Acuren Group Inc. provided, Acuren Group Inc.	ion reflect the opinions or obser t assuming any responsibilities c. In no event shall Acuren Gro	rvations of Acuren of the owner/oper oup Inc.'s liability i	Group Inc. b ator and the c in respect of t	pased on information and converse on information and converse on the services referred to here	uch services extend beyond the performanc assumptions supplied by the owner/operato implete responsibility for the engineering, m rein exceed the amount paid for such servic irs performing such services in the same or	r ana are not intenueu r nanufacture, repair and res.	use decisions as a result of the
SIGNATURES								
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